AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the present application.

IN THE CLAIMS:

Claim 1. (Canceled).

Claim 2. (Currently Amended) The method according to claim 24 ~~1~~, wherein the nucleotide sequence ~~gene is introduced into the plant cell in the form that it~~ is operably ligated to a promoter sequence and a terminator sequence both of which are functional in the plant cell.

Claims 3-4. (Canceled).

Claim 5. (Currently Amended) The method according to claim 24 ~~1~~, wherein the weed control compound inhibits ~~is that inhibiting~~ porphyrin biosynthesis of a plant.

Claim 6. (Currently Amended) The method according to claim 24 ~~1~~, wherein the weed control compound is a protoporphyrinogen IX oxidase inhibitory-type herbicidal compound.

Claims 7-23. (Canceled).

Claim 24. (Currently Amended) A method for producing a transgenic plant which is resistant to a weed control compound, comprising the steps of: ~~The method according to Claim 22,~~

introducing into a plant cell, a nucleotide sequence encoding ~~wherein the protein is~~ a variant of plant protoporphyrinogen IX oxidase ~~derived from a plant~~ that lacks the FAD binding sequence;

expressing the nucleotide sequence; and

regenerating said plant cell into a transgenic plant.

Claim 25. (Currently Amended) The method according to Claim 24 ~~22 or 23~~, wherein the ~~protein is a~~ variant of plant protoporphyrinogen IX oxidase is derived from soybean.

Claims 26-42. (Canceled).

Claim 43. (Currently Amended) A weed control compound-resistant plant produced ~~whose resistance is given~~ by the method of claim 24 ~~1 or 28~~.

Claim 44. (Canceled).

Claim 45. (Currently Amended) A method for protecting a plant which comprises applying a ~~the~~ weed control compound to a growth area of the plant of claim 43.

Claim 46. (Canceled).

Claim 47. (Original) A method for selecting a plant which comprises applying a weed control compound to which the plant of claim 43 is resistant to a growth area of the plant of claim 43 and other plants, and selecting either plant on the basis of difference in growth between the plants.

Claim 48. (Canceled).

Claim 49. (Original) The method according to claim 47, wherein the plants are plant cells.

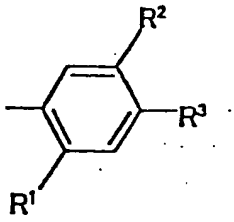
Claim 50. (Canceled).

Claim 51. (Currently Amended) The method according to claim 24 ~~1 or 2~~, wherein the weed control compound is a protoporphyrinogen IX oxidase inhibitory-type herbicidal compound selected from the

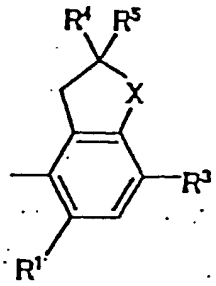
compounds of (1) to (3) below~~, and the substance which is concerned with the weed control activity of the weed control compound is protoporphyrin IX, protoporphyrinogen IX or a protoporphyrinogen IX oxidase inhibitory-type herbicidal compound~~:

(1) chlormethoxynil, bifenox, chlornitrofen, acifluorfen and its ethyl ester, acifluorfen-sodium, oxyfluorfen, oxadiazon, 2-[4-chloro-2-fluoro-5-(prop-2-ynyloxy)phenyl]-2,3,4,5,6,7 hexahydro-1H-isoindol-1,3-dione, chlorphthalim, TNPP-ethyl, or N3-(1-phenylethyl)-2,6-dimethyl-5-propyonylnicotinamide;

(2) a compound represented by the general formula: J-G (I), wherein G is a group represented by any one of the following general formulas G-1 to G-9 and J is a group represented by any one of the following general formulas J-1 to J-30:



G-1



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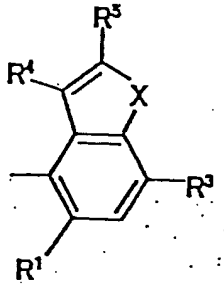

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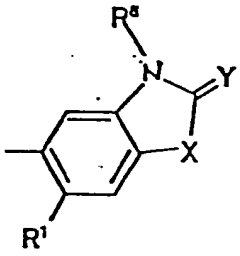

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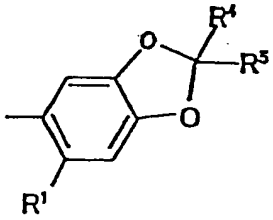

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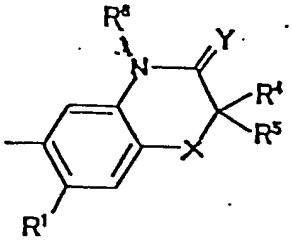

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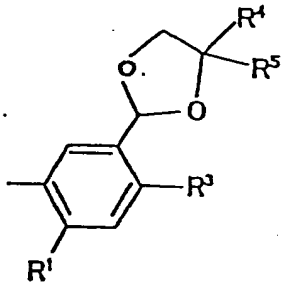

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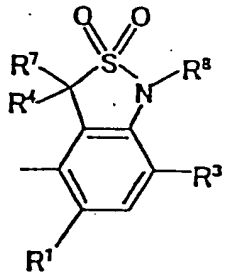

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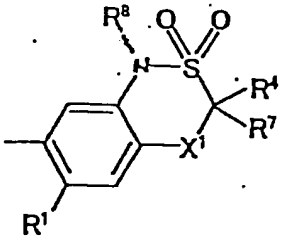

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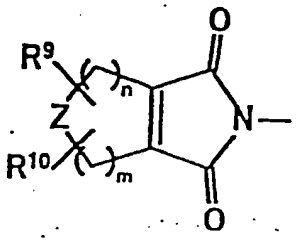
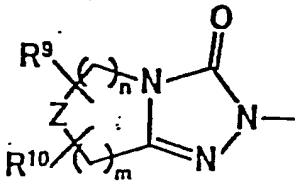


J-1



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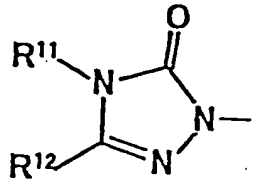

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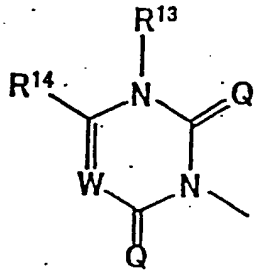

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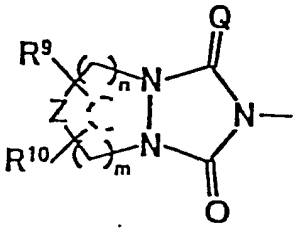

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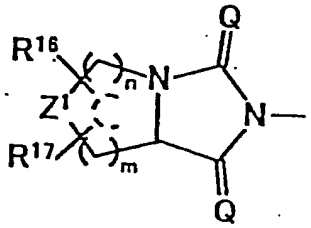

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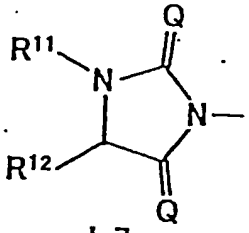

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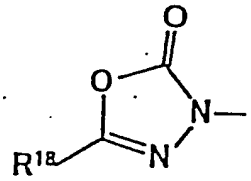

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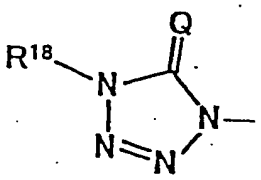

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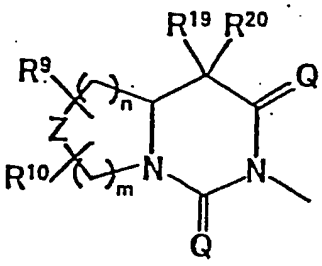

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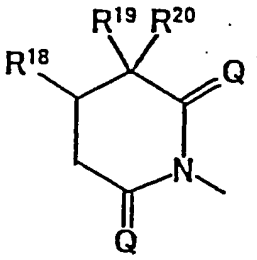

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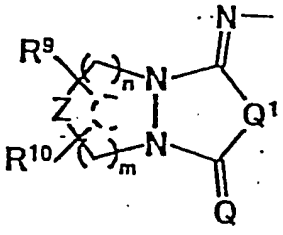

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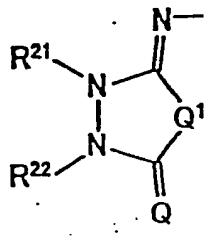

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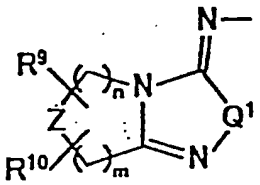

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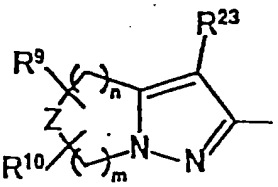

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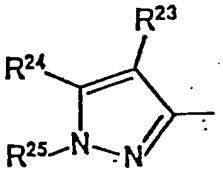

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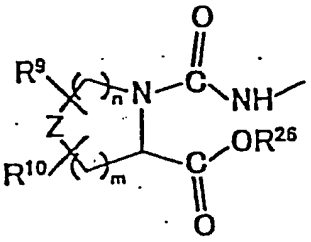

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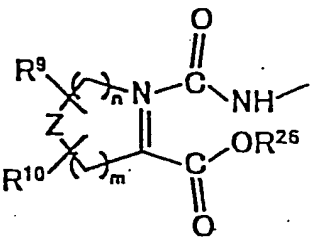

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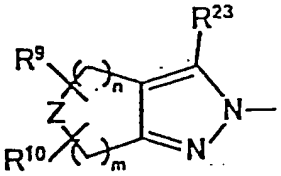

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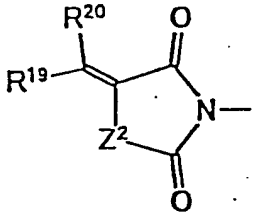

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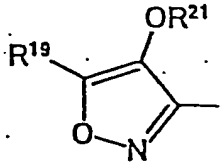

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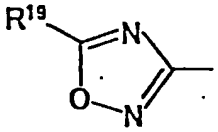

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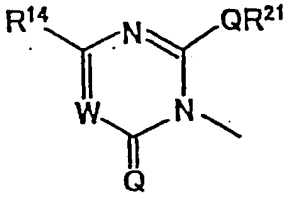

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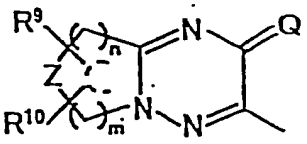

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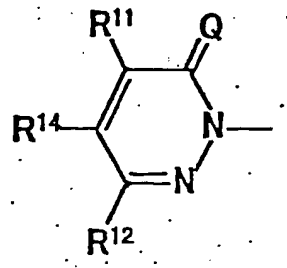

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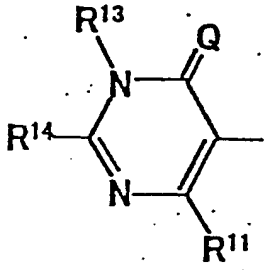

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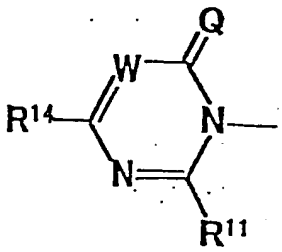

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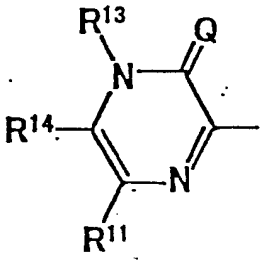

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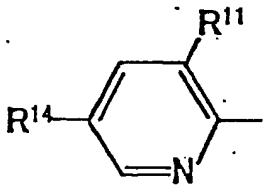

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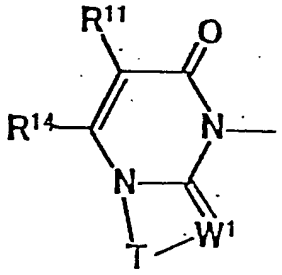


J-30

wherein the dotted lines in the formulas J-5, J-6, J-12 and J-24 represent that the left hand ring contains only single bonds, or one bond in the ring is a double bond between carbon atoms;

X is oxygen atom or sulfur atom;

Y is oxygen atom or sulfur atom;

R1 is hydrogen atom or halogen atom;

R2 is hydrogen atom, C1-C8alkyl group, C1-C8 haloalkyl group, halogen atom, OH group, OR27 group, SH group, S(O)pR27 group, COR27 group, CO2R27 group, C(O)SR27 group, C(O)NR29R30 group, CHO group, CR27=NOR36 group, CH=CR37CO2R27 group, CH2CHR37CO2R27 group, CO2N=CR31R32 group, nitro group, cyano group, NHSO2R33 group, NHSO2NHR33 group, NR27R38 group, NH2 group or phenyl group optionally substituted with one or more and the same or different C1-C4 alkyl groups;

p is 0, 1 or 2;

R3 is C1-C2 alkyl group, C1-C2 haloalkyl group, OCH3 group, SCH3 group, OCHF2 group, halogen atom, cyano group or nitro group;

R4 is hydrogen atom, C1-C3 alkyl group, C1-C3 haloalkyl group or halogen atom;

R5 is hydrogen atom, C1-C3 alkyl group, halogen atom, C1-C3 haloalkyl group, cyclopropyl group, vinyl group, C2 alkynyl group, cyano group, C(O)R38 group, CO2R38 group, C(O)NR38R39 group, CR34R35CN group, CR34R35C(O)R38 group, CR34R35CO2R38 group, CR34R35C(O)NR38R39 group, CHR34OH group, CHR34OC(O)R38 group or OCHR34OC(O)NR38R39 group, or, when G is G-2 or G-6, R4 and R5 may form C=O group together with the carbon atom to which they are attached;

R6 is C1-C6 alkyl group, C1-C6 haloalkyl group, C2-C6 alkoxyalkyl group, C3-C6 alkenyl group or C3-C6 alkynyl group;

X1 is single bond, oxygen atom, sulfur atom, NH group, N(C1-C3 alkyl) group, N(C1-C3 haloalkyl) group or N(allyl) group;

R7 is hydrogen atom, C1-C6 alkyl group, C1-C6 haloalkyl group, halogen atom, S(O)2(C1-C6alkyl) group or C(=O)R40 group;

R8 is hydrogen atom, C1-C8 alkyl group, C3-C8 cycloalkyl group, C3-C8 alkenyl group, C3-C8 alkynyl group, C1-C8 haloalkyl group, C2-C8 alkoxyalkyl group, C3-C8 alkoxyalkoxyalkyl group, C3-C8 haloalkynyl group, C3-C8 haloalkenyl group, C1-C8 alkylsulfonyl group, C1-C8 haloalkylsulfonyl group, C3-C8 alkoxycarbonylalkyl group, S(O)2NH(C1-C8 alkyl) group, C(O)R41 group or benzyl group whose phenyl ring may be substituted with R42;

n and m are independently 0, 1, 2 or 3 and m + n is 2 or 3;

Z is CR9R10 group, oxygen atom, sulfur atom, S(O) group, S(O)2 group or N(C1-C4 alkyl) group;

each R9 is independently hydrogen atom, C1-C3 alkyl group, halogen atom, hydroxyl group, C1-C6 alkoxy group, C1-C6 haloalkyl group, C1-C6 haloalkoxy group, C2-C6 alkylcarbonyloxy group or C2-C6 haloalkylcarbonyloxy group;

each R10 is independently hydrogen atom, C1-C3 alkyl group, and hydroxyl group or halogen atom;

R11 and R12 are independently hydrogen atom, halogen atom, C1-C6 alkyl group, C3-C6 alkenyl group or C1-C6 haloalkyl group;

R13 is hydrogen atom, C1-C6 alkyl group, C1-C6 haloalkyl group, C3-C6 alkenyl group, C3-C6 haloalkenyl group, C3-C6 alkynyl group, C3-C6 haloalkynyl group, HC(=O) group, (C1-C4 alkyl)C(=O) group or NH2 group;

R14 is C1-C6 alkyl group, C1-C6 alkylthio group, C1-C6 haloalkyl group or N(CH3)2 group;

W is nitrogen atom or CR15;

R15 is hydrogen atom, C1-C6 alkyl group, halogen atom, or phenyl group optionally substituted with C1-C6 alkyl group, one or two halogen atoms, C1-C6 alkoxy group or CF3 group;

each Q is independently oxygen atom or sulfur atom;

Q1 is oxygen atom or sulfur atom;

Z1 is CR16R17 group, oxygen atom, sulfur atom, S(O) group, S(O)2 group or N(C1-C4alkyl) group;

each R16 is independently hydrogen atom, halogen atom, hydroxyl group, C1-C6 alkoxy group, C1-C6 haloalkyl group, C1-C6

haloalkoxy group, C2-C6 alkylcarbonyloxy group or C2-C6 haloalkylcarbonyloxy group;

each R17 is independently hydrogen atom, hydroxyl group or halogen atom;

R18 is C1-C6 alkyl group, halogen atom or C1-C6 haloalkyl group;

R19 and R20 are independently hydrogen atom, C1-C6 alkyl group, or C1-C6 haloalkyl group;

Z2 is oxygen atom, sulfur atom, NR9 group or CR9R10 group;

R21 and R22 are independently C1-C6 alkyl group, C1-C6 haloalkyl group, C3-C6 alkenyl group, C3-C6 haloalkenyl group, C3-C6 alkynyl group or C3-C6 haloalkynyl group;

R23 is hydrogen atom, halogen atom or cyano group;

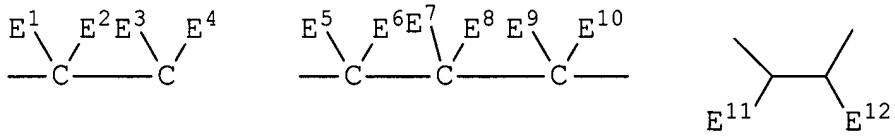
R24 is C1-C6 alkylsulfonyl group, C1-C6 alkyl group, C1-C6 haloalkyl group, C3-C6 alkenyl group, C3-C6 alkynyl group, C1-C6 alkoxy group, C1-C6 haloalkoxy group or halogen atom;

R25 is C1-C6 alkyl group, C1-C6 haloalkyl group, C3-C6 alkenyl group or C3-C6 alkynyl group;

R26 is C1-C6 alkyl group, C1-C6 haloalkyl group or phenyl group optionally substituted with C1-C6 alkyl, one or two halogen atoms, one or two nitro groups, C1-C6 alkoxy group or CF3 group;

W1 is nitrogen atom or CH group;

T is a group represented by any one of the following general formulas T-1, T-2 and T-3;



T-1 T-2 T-3

(wherein E1, E2, E3, E4, E5, E6, E7, E8, E9, E10, E11 and E12 are independently hydrogen atom or C1-C3 alkyl group);

R27 is C1-C8 alkyl group, C3-C8 cycloalkyl group, C3-C8 alkenyl group, C3-C8alkynyl group, C1-C8 haloalkyl group, C2-C8 alkoxyalkyl group, C2-C8 alkylthioalkyl group, C2-C8 alkylsulfinylalkyl group, C2-C8 alkylsulfonylalkyl group, C1-C8 alkylsulfonyl group, phenylsulfonyl group whose phenyl ring may be substituted with at least one substituent selected from the group consisting of halogen atom and C1-C4 alkyl group, C4-C8 alkoxyalkoxyalkyl group, C4-C8 cycloalkylalkyl group, C6-C8 cycloalkoxyalkyl group, C4-C8 alkenyloxyalkyl group, C4-C8 alkynyloxyalkyl group, C3-C8 haloalkoxyalkyl group, C4-C8 haloalkenyloxyalkyl group, C4-C8 haloalkynyloxyalkyl group, C6-C8 cycloalkylthioalkyl group, C4-C8 alkenylthioalkyl group, C4-C8 alkynylthioalkyl group, C1-C4 alkyl group substituted with phenoxy group whose ring is substituted with at least one substituent

selected from the group consisting of halogen atom, C1-C3 alkyl group and C1-C3 haloalkyl group, benzyloxy group whose ring is substituted with at least one substituent selected from the group consisting of halogen atom, C1-C3 alkyl group and C1-C3 haloalkyl group, C4-C8 trialkylsilylalkyl group, C3-C8 cyanoalkyl group, C3-C8 halocycloalkyl group, C3-C8 haloalkenyl group, C5-C8 alkoxyalkenyl group, C5-C8 haloalkoxyalkenyl group, C5-C8 alkylthioalkenyl group, C3-C8 haloalkynyl group, C5-C8 alkoxyalkynyl group, C5-C8 haloalkoxyalkynyl group, C5-C8 alkylthioalkynyl group, C2-C8 alkylcarbonyl group, benzyl group whose ring is substituted with at least one substituent selected from the group consisting of halogen atom, C1-C3 alkyl group and C1-C3 haloalkyl group, CHR34COR28 group, CHR34COOR28 group, CHR34P(O)(OR28)2 group, CHR34P(S)(OR28)2 group, CHR34C(O)NR29R30 group or CHR34C(O)NH2 group;

R28 is C1-C6 alkyl group, C2-C6 alkenyl group, C3-C6 alkynyl group or tetrahydrofuranyl group;

R29 and R31 are independently hydrogen atom or C1-C4 alkyl group;

R30 and R32 are independently C1-C4 alkyl group or phenyl group whose ring may be substituted with at least one substituent

selected from the group consisting of halogen atom, C1-C3 alkyl group and C1-C3 haloalkyl group; or,

R29 and R30 together may form -(CH2)5-, -(CH2)4- or -CH2CH2OCH2CH2-, or the ring thus formed may be substituted with at least one substituent selected from the group consisting of C1-C3 alkyl group, phenyl group and benzyl group; or,

R31 and R32 may from C3-C8 cycloalkyl group together with the carbon atom to which they are attached;

R33 is C1-C4 alkyl group, C1-C4 haloalkyl group or C3-C6 alkenyl group;

R34 and R35 are independently hydrogen atom or C1-C4 alkyl group;

R36 is hydrogen atom, C1-C6 alkyl group, C3-C6 alkenyl group or C3-C6 alkynyl group;

R37 is hydrogen atom, C1-C4 alkyl group or halogen atom;

R38 is hydrogen atom, C1-C6 alkyl group, C3-C6 cycloalkyl group, C3-C6 alkenyl group, C3-C6 alkynyl group, C2-C6 alkoxyalkyl group, C1-C6 haloalkyl group, phenyl group whose ring may be substituted with at least one substituent selected from the group consisting of halogen atom, C1-C4 alkyl group and C1-C4 alkoxy group, -CH2CO2(C1-C4 alkyl) group or -CH(CH3)CO2(C1-C4 alkyl) group;

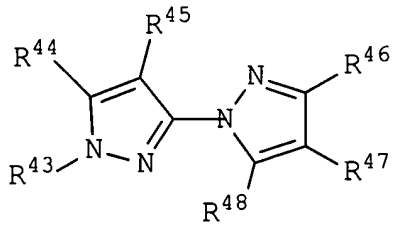
R39 is hydrogen atom, C1-C2 alkyl group or C(O)O(C1-C4 alkyl) group;

R40 is hydrogen atom, C1-C6 alkyl group, C1-C6 alkoxy group or NH(C1-C6 alkyl) group;

R41 is C1-C6 alkyl group, C1-C6 haloalkyl group, C1-C6 alkoxy group, NH(C1-C6 alkyl) group, phenyl group whose ring may be substituted with one substituent selected from the group consisting of R42 group, benzyl group and C2-C8 dialkylamino group; and

R42 is C1-C6 alkyl group, one or two halogen atoms, C1-C6 alkoxy group or CF3 group;

(3) a compound of the formula (II):



or nipilacrofen,

wherein R43 is C1-C4 alkyl group;

R44 is C1-C4 alkyl group, C1-C4 alkylthio group, C1-C4 alkoxy group, C1-C4 haloalkyl group, C1-C4 haloalkylthio group or C1-C4 haloalkoxy group;

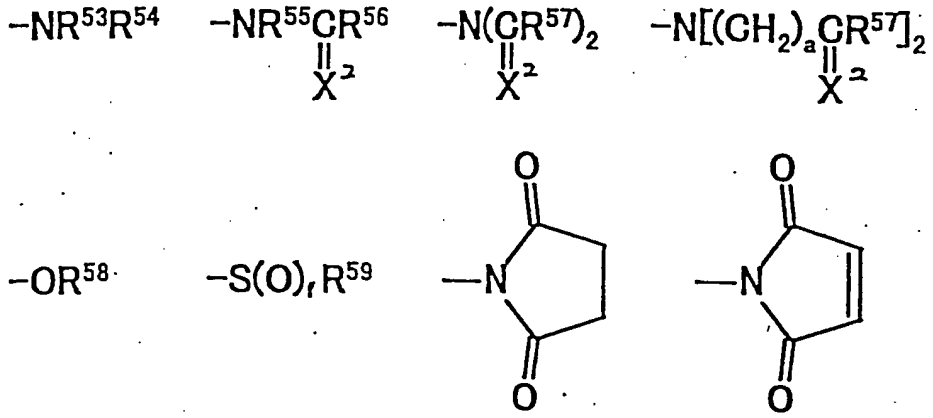
R43 and R44 together may form -(CH2)3- or -(CH2)4-;

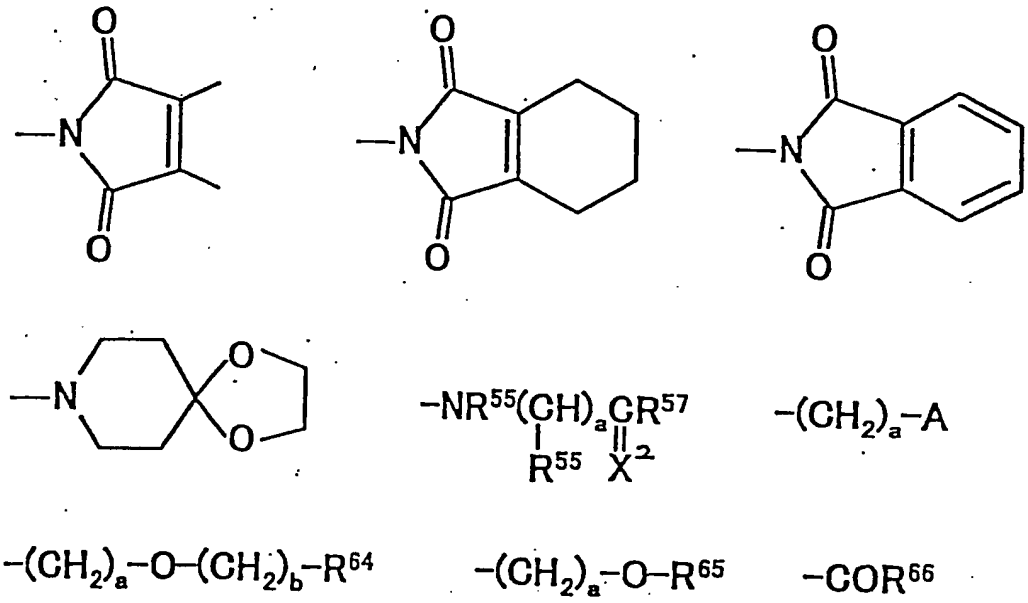
R45 is hydrogen atom or halogen atom;

R46 is hydrogen atom or C1-C4 alkyl group;

R47 is hydrogen atom, nitro group, cyano group, -COOR49 group, -C(=X)NR50R51 group or -C(=X2)R52 group;

R48 is hydrogen atom, halogen atom, cyano group, C1-C4 alkyl group optionally substituted with at least one substituent selected from the group consisting of halogen atom and hydroxyl group, C1-C4 alkoxy group, phenyl group optionally substituted with at least one substituent selected from the group consisting of halogen atom, nitro group, cyano group, C1-C4 alkyl group, C1-C4 alkoxy group and halo-C1-C4 alkyl group, pyrrolyl group, C2-C8 alkyl group, C3-C8 alkenyl group, C3-C8 alkynyl group, C3-C8 alkoxy group, a group selected from the group consisting of C2-C8 alkyl group, C3-C8 alkenyl group, C3-C8 alkynyl group and C3-C8 alkoxy group into which at least one oxygen atom is inserted, or any one of groups represented by the following formulas:





wherein R49, R50 and R52 are, the same or different, hydrogen atom or C1-C4 alkyl group;

R50 and R51 may form saturated alicyclic 5 or 6 membered ring together with the nitrogen atom to which they are attached;

R52 is hydrogen atom, C1-C4 alkyl group or C1-C4 alkyl group substituted with at least one halogen atom;

R53 is hydrogen atom, C1-C4 alkyl group optionally substituted with at least one halogen atom, C2-C6 alkenyl group optionally substituted with at least one halogen atom, C3-C6 alkynyl group optionally substituted with at least one halogen

atom, phenyl group optionally substituted with at least one halogen atom, C3-C8 cycloalkyl group, cyanomethyl group, or R63CO- group;

R54 is hydrogen atom, C1-C6 alkyl group optionally substituted with at least one halogen atom, C2-C6 alkenyl group optionally substituted with at least one halogen atom, C3-C6 alkynyl group optionally substituted with at least one halogen atom, phenyl group optionally substituted with halogen atom, C3-C8 cycloalkyl group, cyanomethyl group, C1-C4 alkoxy-C1-C6 alkyl group, di-C1-C4 alkylamino-C1-C4 alkyl group, tetrahydrofurfurylmethyl group, C3-C6 alkynyloxy-C1-C4 alkyl group, benzyl whose ring may be substituted with substituent selected from the group consisting of halogen atom, nitro group, cyano group, C1-C4 alkyl group, C1-C4 alkoxy group and halo-C1-C4 alkyl group, -C(=X2)R63 group, -(CH2)a-(O)d-R70 group, -(CH2)a-O-(CH2)b-R70 group, -(CH2)a-X2-R76 group;

R53 and R54 together with the nitrogen atom to which they are attached may form saturated alicyclic 3, 5 or 6 membered ring or aromatic 5 or 6 membered ring in which a carbon atom may be optionally replaced with oxygen atom;

R55 is hydrogen atom, C1-C4 alkyl group, C2-C6 alkenyl group or C3-C6 alkynyl group, or R55 and R56 together may form -(CH2)e-;

R56 and R57 are independently C1-C4 alkyl group optionally substituted with at least one halogen atom, C2-C6 alkenyl group optionally substituted with at least one halogen atom, C3-C6 alkynyl optionally substituted with at least one halogen atom or phenyl group optionally substituted with at least one halogen atom, hydrogen atom, C3-C6 cycloalkyl group, -XR60 group or -NR61R62 group;

R58 is hydrogen atom, C1-C6 alkyl group, C2-C6 alkenyl group, C3-C6 alkynyl group, C1-C4 alkylcarbonyl group, cyano-C1-C3 alkyl group, C1-C4 alkoxycarbonyl-C1-C4 alkyl group, di-C1-C4 alkoxycarbonyl-C1-C4 alkyl group, benzyl group, C1-C4 alkoxy-C1-C4 alkynyl group, -(CH2)a-R75 group, -(CH2)a-X2-R72 group, -(CH2)a-X2-(CH2)b-R72 group or -(CH2)a-X2-(CH2)b-X2-(CH2)c-R72 group;

R59 is hydrogen atom, C1-C4 alkyl group, C2-C6 alkenyl group, C3-C6 alkynyl group, cyano-C1-C3 alkyl group, C1-C4 alkylcarbonyl-C1-C3 alkyl group or phenyl group;

R60 is C1-C4 alkyl group optionally substituted with at least one halogen atom;

R61 and R62 are, the same or different, hydrogen atom or C1-C4 alkyl group;

R63 is C1-C4 alkyl group optionally substituted with at least one halogen atom, C1-C4 alkoxy-C1-C4 alkyl group, C1-C4

alkylthio-C1-C4 alkyl group, C3-C6 cycloalkyl group, phenyl group whose ring may be substituted with one substituent selected from the group consisting of halogen atom, nitro group, cyano group, C1-C4 alkyl group, C1-C4 alkoxy group and halo-C1-C4 alkyl group, -NR73R74 group or -(CH2)a-(O)d-R75 group;

R64 is C1-C4 alkoxycarbonyl group or carboxyl group;

R65 is chloromethyl group, cyanomethyl group, C3-C6 cycloalkyl group into which at least one oxygen atom may be inserted, or C1-C4 alkoxycarbonyl-C1-C4 alkyl group;

R66 is hydroxyl group or -NR67R68 group;

A is -NR67R68 group or -S(O)f-R69 group;

R67 and R68 are, the same or different, hydrogen atom or C1-C4 alkyl group;

R69 is C1-C4 alkyl group or C1-C4 haloalkyl group;

R70 is hydrogen atom, hydroxyl group, halogen atom, C1-C4 alkyl group optionally substituted with at least one C1-C4 alkoxy group, C3-C6 cycloalkyl group into which at least one oxygen atom may be inserted, C3-C6 cycloalkyl group optionally substituted with one or two methyl groups, furyl group, thienyl group or -C(=O)R71 group;

R71 and R72 are, the same or different, C1-C4 alkyl group or C1-C4 alkoxy group;

R73 and R74 are, the same or different, C1-C4 alkyl group or phenyl group;

R75 is C3-C6 cycloalkyl into which at least one oxygen atom may be inserted, C3-C6 cycloalkyl group optionally substituted with one or two methyl groups, furyl group, thienyl group or -C(=O)R71 group;

R76 is C1-C4 alkyl group;

a, b and c is independently 1, 2 or 3;

d is 0 or 1;

e is 2 or 3;

f is 1 or 2; and

X2 is oxygen atom or sulfur atom.

Claims 52-69. (Canceled).

Claim 70. (New) The method according to claim 24, wherein said variant further lacks the chloroplast transit signal.